Remarks/Arguments:

Reconsideration of the application is requested.

Claims 1-11 remain in the application.

In item 2 on page 2 of the above-identified Office action, claims 1 and 3-6 have been rejected as being obvious over Hsieh et al. (U.S. Patent No. 5,885,425) (hereinafter "Hsieh") in view of Bronner et al. (U.S. Patent No. 6,562,634 B2) (hereinafter "Bronner") under 35 U.S.C. § 103.

In item 3 on page 4 of the Office action, claims 7-9 and 11 have been rejected as being obvious over Hsieh. (U.S. Patent No. 5,885,425) in view of Athavale et al. (U.S. Patent No. 6,562,634 B2) (hereinafter "Athavale") under 35 U.S.C. § 103.

As will be explained below, it is believed that the claims were patentable over the cited art in their original form and the claims have, therefore, not been amended to overcome the references.

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful.

Applic. No. 10/675,766
Amdt. dated October 24, 2006
Reply to Office action of July 24, 2006

Claims 1 and 7 call for, *inter alia*:

patterning the mask layer with an ion beam being directed obliquely onto the depression at an angle for irradiating the mask layer only in an irradiated subregion of the depression resulting in a removal of the mask layer in the irradiated subregion.

On pages 2 and 5, the Examiner alleges that Hsieh discloses "patterning the mask layer with an ion beam being directed obliquely onto the depression at an angle for irradiating the mask layer only in an irradiated substrate depression at an angle for irradiating the mask layer only in an irradiated substrate region." As will be seen from the following remarks, applicants respectfully disagree with the Examiner's allegation.

The Hsieh reference discloses providing a substrate (210) of monocrystalline silicon with a deep trench (215) having a recessed feature (216) above a remaining layer of fill material (213) (column 12 lines 14-41 and Fig. 12). A blanket layer (217) of silicon oxide is deposited in the recessed feature (216) by using chemical vapor deposition (Fig. 13). Then a mask (218) is deposited on the recessed feature (216)

in a portion thereof by angled collimated sputtering. The formation of the mask is essentially a self-aligned process and no procedures are required for exact registration of the mask. The location edge of the mask in the bottom of the recessed feature being entirely a function of the depth of the recessed feature and the angle at which collimated sputtering is carried out (column 12, lines 41-51 and Fig. 14).

Subsequently, the mask (218) is used to open the blanket layer (217) of silicon oxide with an anisotropic etch, by for example, a reactive ion etching (column 12, lines 56-64 and Fig. 15). Accordingly, Hsieh discloses a shadowing of the depression for **depositing a mask** in part of the depression.

This is contrary to the invention of the instant application as claimed, in which shadowing of the depression is used for **irradiating the mask** layer only in a part of a subregion of the depression. Therefore, the present invention as claimed does not require the use of a further mask for structuring the mask layer. The present invention provides the advantage that mask layer is uniformly deposited in the depression. Furthermore, the patterning method as recited in claims 1 and 7 of the instant application is more precise because the irradiation is influenced less by shadowing as compared to a process which deposits the mask with a collimated sputtering.

The shadowing of the depression for sputtering, disclosed by Hsieh, causes non-uniform thickness of the deposited mask layer. Accordingly, as seen from the above given remarks, it is respectfully noted that the Examiner's allegation with respect to the patterning of the mask layer, are not accurate.

It is a requirement for a *prima facie* case of obviousness, that the prior art references must teach or suggest **all** the claim limitations.

As seen from the above given remarks, the references do not show or suggest patterning the mask layer with an ion beam being directed obliquely onto the depression at an angle for irradiating the mask layer only in an irradiated subregion of the depression resulting in a removal of the mask layer in the irradiated subregion, as recited in claim 1 of the instant application.

The Hsieh reference discloses that a mask of the recessed feature is deposited in a portion of the recessed feature by angle collimated sputtering. Hsieh does not disclose patterning a mask layer with an ion beam that is directed obliquely on to the depression. This is contrary to the invention of the instant application as claimed, which recites patterning the mask layer with an ion beam being directed

obliquely onto the depression at an angle for irradiating the mask layer only in an irradiated subregion of the depression resulting in a removal of the mask layer in the irradiated subregion.

Neither Bronner nor Athavale make up for the deficiencies of Hsieh.

The references applied by the Examiner **do not** teach or suggest all the claim limitations. Therefore, it is believed that the Examiner has not produced a *prima facie* case of obviousness.

Since independent claims 1 and 7 are believed to be allowable, dependent claims 3-6, 8, 9, and 11 are believed to be allowable as well.

In item 4 on page 6 of the Office action, claim 10 has been rejected as being obvious over Hsieh. (U.S. Patent No. 5,885,425) in view of Athavale (U.S. Patent No. 6,562,634 B2) and further in view of Bronner (U.S. Patent No. 6,562,634 B2) under 35 U.S.C. § 103. Bronner does not make up for the deficiencies of Hsieh and Athavale. Since claim 7 is believed to be allowable, dependent claim 10 is believed to be allowable as well.

It is appreciatively noted from item 5 on page 6 of the Office action that claims 2 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The claims have not been amended as indicated by the Examiner, as the claims are believed to be patentable in their existing form.

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claims 1 or 7. Claims 1 and 7 are, therefore, believed to be patentable over the art and since all of the dependent claims are ultimately dependent on claims 1 or 7, they are believed to be patentable as well.

In view of the foregoing, reconsideration and allowance of claims 1-11 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel respectfully requests a telephone call so that, if possible, patentable language can be worked out.

If an extension of time for this paper is required, petition for extension is herewith made.

Applic. No. 10/675,766
Amdt. dated October 24, 2006
Reply to Office action of July 24, 2006

Please charge any other fees which might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner Greenberg Stemer LLP, No. 12-1099.

Respectfully submitted,

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For Applicant(s)

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